UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,416	11/14/2003	A. Roger Hammons JR.	021115	2289

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CORVIS CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
7015 ALBERT EINSTEIN DRIVE
COLUMBIA, MD 210469400

EXAMINER
RIZK, SAMIR WADIE

ART UNIT	PAPER NUMBER
2133	

DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/714,416	HAMMONS, A. ROGER
	Examiner	Art Unit	
	Sam Rizk	2133	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 November 2003*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/14/2003*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTIONS

- Claims 1-22 have been submitted for examination

- Claims 1-22 have been rejected

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1.   Claims 1-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Pyndiah

et al. US patent no. 6122763 (Hereinafter Pyndiah).

2.   In regard to claim 1, Pyndiah teaches:

- A method for encoding information symbols comprising:

- loading information symbols into a data array with $n^{(1)}$ rows and $n^{(2)}$

columns, wherein each column has $k^{(1)}_i$ information symbols, and

wherein $k^{(1)}$ is an array that has at least two different values;

- encoding each column with a code $C^{(1)}_i$ from a family of nested codes

$C^{(1)}$, wherein $C^{(1)}$ includes two different nested codes; and

- encoding each row with a code $C^{(2)}$

(Note: FIG. 2, and col. 10, lines (41-63) in Pyndiah)

3.   In regard to claim 2, Applicant admitted Prior Art (AAPA) teaches:

- The method of claim 1, wherein the codes in the family of codes $C^{(1)}$ are selected from the group consisting of BCH codes, Reed-Solomon codes, and Reed-Muller codes.

(Note: Specification Page 3, lines (5-30) in AAPA)

4.   In regard to claim 3, Pyndiah teaches:

- A method for encoding data comprising:

- loading information symbols into an m-dimensional array, wherein m is a positive integer >= 2, and Wherein a first dimension has a vector of $k^{(1)}_i$ information symbols, where $k^{(1)}$ is an array that has at least two different values, and a second dimension has a vector of fixed number $k^{(2)}$ information symbols;

- encoding each vector of the first dimension with a code $C^{(1)}_i$ from a family of nested $C^{(1)}$, wherein $C^{(1)}$ includes two different nested codes; and

- encoding each vector of the second dimension with a code $C^{(2)}$.

(Note: FIG. 2, and col. 10, lines (41-63) in Pyndiah)

5.   Claim 4 is rejected for the same reasons as per claim 2

6.   In regard to claim 5, AAPA teaches:

- The method of claim 3, wherein the codes in the family of codes C are BCH codes and Reed-Solomon codes.

(Note: Specification Page 3, lines (5-30) in AAPA)

7.   Claim 6 is rejected for the same reasons as per claim 1.

8.   Claim 7 is rejected for the same reasons as per claim 4.

9.   Claim 8 is rejected for the same reasons as per claim 5.

10.   In regard to claim 9, Pyndiah teaches:

-   An irregular array code for encoding information symbols in a data

    array having rows and columns comprising:

-   a first code family C_1 including nested codes $C^{(1)}_i$ wherein nested

    codes $C^{(1)}_i$ encode the columns of the data array, and wherein the first

    code family C_1 includes at least two different nested codes; and

-   a second code family C_2 including a single code $C^{(2)}$, wherein code

    $C^{(2)}$ encodes the rows of the data array.

    (Note: FIG. 2, and col. 10, lines (41-63) in Pyndiah)

11.   Claim 10 is rejected for the same reasons as per claim 2.

12.   Claim 11 is rejected for the same reasons as per claim 5.

13.   In regard to claim 12, Pyndiah teaches:

-   An information encoder comprising:

-   a first input for receiving information symbols;

-   a second input for receiving an irregular array code;

-   a processor coupled to the first and second inputs that places the

    information symbols in a data array and that applies the irregular array

    code to produce encoded information symbols; and

-   an output for outputting the encoded information symbols;

- wherein the irregular array code includes a first code family C_1

including nested codes $C^{(1)}_i$ wherein nested codes $C^{(1)}_i$ encode the

columns of the data array, and wherein the first code family C_1 includes

at least two different nested codes and a second code C_2 including a

single code $C^{(2)}$, wherein code $C^{(2)}$ encodes the rows of the data

array.

(Note: FIG. 7 and col. 13, lines (1-25) in Pyndiah)

(Note: FIG. 2 and col. 10, lines (41-63) in Pyndiah)

14.   In regard to claim 13, Pyndiah teaches:

- The information encoder of claim 12, wherein the encoder is

implemented on an integrated circuit.

(Note: FIG. 7, reference sign (68) in Pyndiah)

15.   In regard to claim 14, Pyndiah teaches:

- The information encoder of claim 13, wherein the encoder is

implemented on a general purpose computer

(Note: FIG. 7, reference signs (69-70) in Pyndiah)

16.   Claim 15 is rejected for the same reasons as per claim 2.

17.   Claim 16 is rejected for the same reasons as per claim 5.

18.   In regard to claim 17, Pyndiah teaches:

- A communication system comprising:

- a forward error correction encoder with an input receiving information symbols and an output producing encoded data, wherein the forward error correction encoder:

- loads information symbols into an array with $n^{(1)}$ rows and $n^{(2)}$ columns, wherein each column has $k^{(1)}_i$ information symbols, and wherein $k^{(1)}$ is an array that has at least two different values;

- encodes each column with a code $C^{(1)}_i$ from a family of nested codes $C^{(1)}$, wherein $C^{(1)}$ includes each row with a code $C^{(2)}$;

(Note: FIG. 2 and col. 10, lines (41-63) in Pyndiah)

- a communication medium;

- a transmitter with an input connected to the output of the forward error correction encoder and an output connected to the communication medium, wherein the transmitter transmits the encoded data through the communication medium;

- a receiver with an input connected to the communication medium and an output, wherein the receiver receives the encoded data from the communication medium; and

- a forward error correction decoder with an input connected to the output of the receiver, wherein the decoder decodes the encoded data into information symbols.

(Note: FIG. 1 in Pyndiah)

19.   In regard to claim 18, Pyndiah teaches:

- The communication system of claim 17, wherein the forward error

  correction encoder is part of the transmitter.

  (Note: FIG. 1, reference sign (12) in Pyndiah)

20.   In regard to claim 19, Pyndiah teaches:

- The communication system of claim 17, wherein the forward error

  correction decoder is part of the receiver.

  (Note: FIG. 1, reference sign (17) in Pyndiah)

21.   In regard to claim 20, Pyndiah teaches:

- The communication system of claim 17 where in the communication

  medium is selected from the group consisting of an electrical medium,

  an optical medium, a storage medium, or a free space medium.

  (Note: FIG. 1 in Pyndiah)

22.   Claim 21 is rejected for the same reasons as per claim 2.

23.   Claim 22 is rejected for the same reasons as per claim 5.

Conclusion

24.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

- Pyndiah et al US patent no. 6065147 teaches process for transmitting

  information bits with error correction coding, coder and decoder for the

  implementation of the process

- Picart et al. performance of turbo decoded product codes used in multilevel coding. 1996 IEEE international conference on converging technologies for tomorrow's, pages (107-111), vol. 1. copy provided.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Rizk whose telephone number is (571) 272-8191. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.
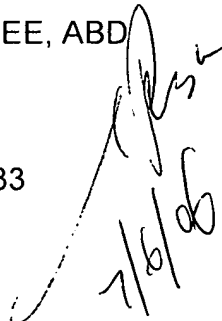
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronics Business Center (EBC) at 866-217-9197 (toll-free)

Sam Rizk, MSEE, ABD

Examiner

ART UNIT 2133

GUY LAMARRE
PRIMARY EXAMINER